## SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT:

Michael J. Heller

Eugene Tu

Glen A. Evans

Ronald G. Sosnowski

(ii) TITLE OF INVENTION: SELF-ADDRESSABLE

SELF-ASSEMBLING

MICROELECTRONIC SYSTEMS AND

DEVICES FOR

MOLECULAR BIOLOGICAL ANALYSIS

AND

DIAGNOSTICS

(iii) NUMBER OF SEQUENCES:

(iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE:

Lyon & Lyon

(B) STREET:

633 West Fifth Street

(C) CITY:

Los Angeles California

(D) STATE:

(E) COUNTRY:

USA

(F) ZIP:

90071

(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE:

3.5" Diskette, 1.44 Mb

storage

(B) COMPUTER:

IBM Compatible

(C) OPERATING SYSTEM:

IBM P.C. DOS (Version

5.0)

(D) SOFTWARE:

WordPerfect (Version

5.1)

(vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER:

08/271,882

(B) FILING DATE:

July 7, 1994

(C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER:

08/146,504

(B) FILING DATE:

November 1, 1993

(viii) ATTORNEY/AGENT INFORMATION:

(A) NAME:

Murphy, David B.

(B) REGISTRATION NUMBER:

31,125

		(C)	REFEREN	CE/DOCKET	MONDE		.0., 200			
	(ix)	TELECO	MMUNICA	TION INFO	RMATIO	N:				
		(B)	TELEPHO TELEFAX TELEX:				(213) 4: (213) 9: 67-3510			
(2)	INFOR	MATION	FOR SEQ	ID NO:	1:					
		(i) S	SEQUENCE	CHARACTE	RISTIC	CS:				
			(A) I (B) T	ENGTH:					24 nucleic	
acio	1.			TRANDEDNE TOPOLOGY:	SS:				single linear	
		(ii) :	SEQUENCE	E DESCRIPT	ION:	SEQ	ID NO:	1:		
GCT	AGC C	CC TGC	TCA TGA	A GTC TCU					2	4
(2)	INFOR			Q ID NO:		aa.				
		(i)	SEQUENCI	E CHARACTI	ERISTI	CS:				
acio				LENGTH: FYPE:					24 nucleic	
	d			STRANDEDNI TOPOLOGY:	ESS:				single linear	
		(ii)	SEQUENC:	E DESCRIP	TION:	SEQ	ID NO:	2:		
AAA	AAA i	AAA AAA	AAA AA	A AAU					24	
(2)	INFO			Q ID NO:	3:					
		(i)	SEQUENC	E CHARACT	ERISTI	CS:				
aci				LENGTH: TYPE:					34 nucleic	
	id			STRANDEDN TOPOLOGY:					single linear	
		(ii)	SEQUENC	E DESCRIF	TION:	SEQ	ID NO:	3:		
СТ	A CGT	GGA CC	r gga ga	AG GAA GGA	GAC T	rgc c	TG U		:	3 4

(2) INFORMA	TION FOR SEQ ID NO: 4:	
	(i) SEQUENCE CHARACTERISTICS:	
	(A) LENGTH: (B) TYPE:	20 nucleic
acid	<pre>(C) STRANDEDNESS: (D) TOPOLOGY:</pre>	single linear
(	(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 4:	
GAG TTC AGO	AAA TTT GGA GU	20
(2) INFORM	ATION FOR SEQ ID NO: 5:	
	(i) SEQUENCE CHARACTERISTICS:	
	(A) LENGTH: (B) TYPE:	20 nucleic
acid	<pre>(C) STRANDEDNESS: (D) TOPOLOGY:</pre>	single linear
	(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 5:	
CGT AGA AC	T CCT CAT CTC CU	20
(2) INFORM	ATION FOR SEQ ID NO: 6:	
	(i) SEQUENCE CHARACTERISTICS:	
	(A) LENGTH: (B) TYPE:	18 nucleic
acid	<pre>(C) STRANDEDNESS: (D) TOPOLOGY:</pre>	single linear
	(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 6:	
GTC TCC T	TC CTC TCC AGU	18
(2) INFORM	MATION FOR SEQ ID NO: 7:	
	(i) SEQUENCE CHARACTERISTICS:	
	(A) LENGTH: (B) TYPE:	20 nucleic
acid	<ul><li>(C) STRANDEDNESS:</li><li>(D) TOPOLOGY:</li></ul>	single linear

	(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 7:  AG CAG TTC TAC GTG GU  INFORMATION FOR SEQ ID NO: 8:	20
	(i) SEQUENCE CHARACTERISTICS:	
acid	(A) LENGTH: (B) TYPE:	18 nucleic
	<pre>(C) STRANDEDNESS: (D) TOPOLOGY:</pre>	single linear
	(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 8:	10
CTG (	GAG AAG AAG GAG ACU	18
(2)	INFORMATION FOR SEQ ID NO: 9:	
	(i) SEQUENCE CHARACTERISTICS:	
	(A) LENGTH: (B) TYPE:	22 nucleic
acid	<pre>(C) STRANDEDNESS: (D) TOPOLOGY:</pre>	single linear
	(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 9:	
TTC	CAC AGA CTT AGA TTT GAC U	22
(2)	INFORMATION FOR SEQ ID NO: 10:	
	(i) SEQUENCE CHARACTERISTICS:	
acid	(A) LENGTH: (B) TYPE:	20 nucleic
	(C) STRANDEDNESS: (D) TOPOLOGY:	single linear
	(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 10	:
TTC	CGC AGA TTT AGA AGA TU	20

(2) INFORMATION FOR SEQ ID NO: 11:

(i) S	EQUENCE CHARACTERISTICS:	
	(A) LENGTH: (B) TYPE:	20 nucleic
acid	<pre>(C) STRANDEDNESS: (D) TOPOLOGY:</pre>	single linear
	EQUENCE DESCRIPTION: SEQ ID NO: 11:	20
TGT TTG CCT GTT	CTC AGA CU	20
(2) INFORMATION	FOR SEQ ID NO: 12:	
(i) S	SEQUENCE CHARACTERISTICS:	
	(A) LENGTH: (B) TYPE:	20 nucleic
acid	(C) STRANDEDNESS: (D) TOPOLOGY:	single linear
(ii) s	SEQUENCE DESCRIPTION: SEQ ID NO: 12	
CAT CGC TGT GAC	AAA ACA TU	20
(2) INFORMATION	FOR SEQ ID NO: 13:	
(i)	SEQUENCE CHARACTERISTICS:	
	(A) LENGTH: (B) TYPE:	20 nucleic
acid	(C) STRANDEDNESS: (D) TOPOLOGY:	single linear
(ii)	SEQUENCE DESCRIPTION: SEQ ID NO: 13	
TGC GAG CTG CAG	TCA GAC AT	20
(2) INFORMATION	FOR SEQ ID NO: 14:	
(i)	SEQUENCE CHARACTERISTICS:	
	(A) LENGTH: (B) TYPE:	18 nucleic
acid	<pre>(C) STRANDEDNESS: (D) TOPOLOGY:</pre>	single linear

(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 14: 18 GAG AGA CTC ATG AGC AGG (2) INFORMATION FOR SEQ ID NO: 15: (i) SEQUENCE CHARACTERISTICS: 18 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 15: 18 CCT GCT CAT GAG TCT CTC (2) INFORMATION FOR SEQ ID NO: 16: (i) SEQUENCE CHARACTERISTICS: 19 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 16: 19 TTT TTT TTT TTT TTT TTT T (2) INFORMATION FOR SEQ ID NO: (i) SEQUENCE CHARACTERISTICS: 33 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 17: 33 CAG GCA GTC TCC TTC CTC TCC AGG TCC ACG TAG (2) INFORMATION FOR SEQ ID NO:

(i) SEQUENCE CHARACTERISTICS:

acid	(A) LENGTH: (B) TYPE: (C) STRANDEDNESS:	19 nucleic single linear
(ii) SEÇ	UENCE DESCRIPTION: SEQ ID NO: 18:	
CTC CAA ATT TGC TG	A ACT C	19
	OR SEQ ID NO: 19:	
(i) SEQ	QUENCE CHARACTERISTICS:	
	(A) LENGTH: (B) TYPE:	19 nucleic
acid	(C) STRANDEDNESS: (D) TOPOLOGY:	single linear
(ii) SE	QUENCE DESCRIPTION: SEQ ID NO: 19:	
GGA GAT GAG GAG T	TC TAC G	19
(2) INFORMATION F	OR SEQ ID NO: 20:	
(i) SE	QUENCE CHARACTERISTICS:	
	(A) LENGTH: (B) TYPE:	17 nucleic
acid	(C) STRANDEDNESS: (D) TOPOLOGY:	single linear
(ii) SE	QUENCE DESCRIPTION: SEQ ID NO: 20:	
CTG GAG AGG AAG G	AG AC	17
(2) INFORMATION F	FOR SEQ ID NO: 21:	
(i) SE	EQUENCE CHARACTERISTICS:	
·	(A) LENGTH: (B) TYPE:	19 nucleic
acid	(C) STRANDEDNESS: (D) TOPOLOGY:	single linear

(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 21:  CCA CGT AGA ACT GCT CAT C 19  (2) INFORMATION FOR SEQ ID NO: 22:  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: 17 nucleic  (C) STRANDEDNESS: Single linear  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 22:  GTC TCC TTC TTC TCC AG 17  (2) INFORMATION FOR SEQ ID NO: 23:  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: 10 nucleic  (C) STRANDEDNESS: 11 nucleic  (C) STRA			
CCA CGT AGA ACT GCT CAT C  (2) INFORMATION FOR SEQ ID NO: 22:  (a) LENGTH: (b) TYPE:  (c) STRANDEDNESS: (d) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 22:  GTC TCC TTC TTC TCC AG  (i) SEQUENCE CHARACTERISTICS:  (i) SEQUENCE CHARACTERISTICS:  (i) SEQUENCE CHARACTERISTICS:  (ii) SEQUENCE CHARACTERISTICS:  (iii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  (iii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (ii) SEQUENCE CHARACTERISTICS:  (ii) SEQUENCE CHARACTERISTICS:  (iii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (iv) SEQUENCE CHARACTERISTICS:  (iv) SEQU	(ii	) SEQUENCE DESCRIPTION: SEQ ID NO: 21:	
(i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 22:  GTC TCC TTC TTC TCC AG  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (ii) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (II) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (II) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (C) STRANDEDNESS: (D) TOPOLOGY:  (II) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (D) TOPOLOGY:  (II) SEQUENCE DESCRIPTION: SEQ ID NO: 24:	CCA CGT AGA A	CT GCT CAT C	19
(A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 22:  GTC TCC TTC TTC TCC AG  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (i) SEQUENCE CHARACTERISTICS:  (i) SEQUENCE CHARACTERISTICS:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (ii) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (I) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (II) SEQUENCE CHARACTERISTICS:  (III) SEQUENCE CHARACTE	(2) INFORMATI	ON FOR SEQ ID NO: 22:	
acid  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 22:  GTC TCC TTC TTC TCC AG  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (C) TOPOLOGY:  (II) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  (II) SEQUENCE CHARACTERISTICS:  (III) SEQUENCE CHARACTERISTIC	(i	) SEQUENCE CHARACTERISTICS:	
(C) STRANDEDNESS: single linear  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 22:  GTC TCC TTC TCC AG 17  (2) INFORMATION FOR SEQ ID NO: 23:  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: 21 nucleic  (B) TYPE: single linear  (C) STRANDEDNESS: single linear  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA 21  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: 19 nucleic  (B) TYPE: 19 nucleic  (C) STRANDEDNESS: single linear  (I) SEQUENCE CHARACTERISTICS: single linear  (I) SEQUENCE CHARACTERISTICS: single linear  (I) SEQUENCE CHARACTERISTICS: single linear  (I) SEQUENCE DESCRIPTION: SEQ ID NO: 24:		· ·	<del></del> ·
GTC TCC TTC TCC AG  (2) INFORMATION FOR SEQ ID NO: 23:  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (2) INFORMATION FOR SEQ ID NO: 24:  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (B) TYPE:  (C) STRANDEDNESS: (C) STRANDEDNESS: (D) TOPOLOGY:  (II) SEQUENCE DESCRIPTION: SEQ ID NO: 24:	acid		
GTC TCC TTC TCC AG  (2) INFORMATION FOR SEQ ID NO: 23:  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  acid  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (A) LENGTH: (B) TYPE:  acid  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 24:	(ii	) SEQUENCE DESCRIPTION: SEQ ID NO: 22:	
(i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  acid  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (2) INFORMATION FOR SEQ ID NO: 24:  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (D) TOPOLOGY:  19 nucleic  acid  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 24:	GTC TCC TTC I	TC TCC AG	17
(A) LENGTH: (B) TYPE:  acid  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 24:	(2) INFORMATI	ON FOR SEQ ID NO: 23:	
(A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (2) INFORMATION FOR SEQ ID NO: 24:  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 24:	. (i	) SEQUENCE CHARACTERISTICS:	
(C) STRANDEDNESS: single linear  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 23:  GTC AAA TCT AAG TCT GTG GAA  (2) INFORMATION FOR SEQ ID NO: 24:  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: 19 nucleic  (B) TYPE: nucleic  (C) STRANDEDNESS: single linear  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 24:			
GTC AAA TCT AAG TCT GTG GAA  (2) INFORMATION FOR SEQ ID NO: 24:  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE: (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 24:	acid		
GTC AAA TCT AAG TCT GTG GAA  (2) INFORMATION FOR SEQ ID NO: 24:  (i) SEQUENCE CHARACTERISTICS:  (A) LENGTH:	(ii	i) SEQUENCE DESCRIPTION: SEQ ID NO: 23:	
(i) SEQUENCE CHARACTERISTICS:  (A) LENGTH: (B) TYPE: 19 nucleic  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 24:	GTC AAA TCT A	AAG TCT GTG GAA	21
(A) LENGTH: (B) TYPE:  (C) STRANDEDNESS: (D) TOPOLOGY:  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 24:	(2) INFORMAT	ION FOR SEQ ID NO: 24:	
(A) DENGIH:  (B) TYPE: nucleic  acid  (C) STRANDEDNESS: single  (D) TOPOLOGY: linear  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 24:	(:	i) SEQUENCE CHARACTERISTICS:	
(C) STRANDEDNESS: single (D) TOPOLOGY: linear  (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 24:			
10	acid		
ATC TTC TAA ATC TGC GGA A			
AIC 11C 11L 11L 11C	(i	i) SEQUENCE DESCRIPTION: SEQ ID NO: 24:	:

- (2) INFORMATION FOR SEQ ID NO: 25:
  - (i) SEQUENCE CHARACTERISTICS:

19 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 25: 19 GTC TGA GAA CAG GCA AAC A (2) INFORMATION FOR SEQ ID NO: 26: (i) SEQUENCE CHARACTERISTICS: 19 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 26: 19 ATG TTT TGT CAC AGC GAT G (2) INFORMATION FOR SEQ ID NO: (i) SEQUENCE CHARACTERISTICS: 30 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 27: 30 GGT GGT GGG CGC CGG CGG TGT GGG CAA GAU (2) INFORMATION FOR SEQ ID NO: (i) SEQUENCE CHARACTERISTICS: 30 (A) LENGTH: nucleic (B) TYPE: acid single

(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 28:

linear

(C) STRANDEDNESS:

(D) TOPOLOGY:

GGT GGT GGG CGC CGT CGG TGT GGG CAA GAU

(2) INFORMATION FOR SEQ ID NO: 29:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH:
(B) TYPE:

15

nucleic

(C) STRANDEDNESS:

single

(D) TOPOLOGY:

linear

(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 29:

CC GCG GCC GCC ACA C

15

- (2) INFORMATION FOR SEQ ID NO: 30:
  - (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH:

15

(B) TYPE:

nucleic

acid

(C) STRANDEDNESS:

single

(D) TOPOLOGY:

linear

(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 30:

CC GCG GCA GCC ACA C

15

- (2) INFORMATION FOR SEQ ID NO: 31:
  - (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH:

15

(B) TYPE:

nucleic

acid

(C) STRANDEDNESS:

single

(D) TOPOLOGY:

linear

(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 31:

CC GTG GCA GCC ACA C

15

(2) INFORMATION FOR SEQ ID NO: 32:

(i) SEQUENCE CHARACTERISTICS:

30 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 32: 30 GGT GGT GGG CGC CGG CGG TGT GGG CAA GAU (2) INFORMATION FOR SEQ ID NO: (i) SEQUENCE CHARACTERISTICS: 29 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 33: 29 GGT GGT GGG CGC CGG CGG TGT GGG CAA GA (2) INFORMATION FOR SEQ ID NO: 34: (i) SEQUENCE CHARACTERISTICS: 22 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 34: 22 TGC CCA CAC CGC CGG CGC CCA C (2) INFORMATION FOR SEQ ID NO: 35: (i) SEQUENCE CHARACTERISTICS: 22 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY:

(ii) SEQUENCE DESCRIPTION: SEQ ID NO: 35:

7

7

TGC CCA CAC CGA CGG CGC CCA C (2) INFORMATION FOR SEQ ID NO: (i) SEQUENCE CHARACTERISTICS: 22 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 36: 22 TGC CCA CAC CGA CGG TGC CCA C (2) INFORMATION FOR SEQ ID NO: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 37: ACA CCG C (2) INFORMATION FOR SEQ ID NO: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 38: ACA ACG C

- (2) INFORMATION FOR SEQ ID NO: 39:
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH:

nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 39: 31 CCA GTC ACG ACG TTG TAA AAC GAC GGC CAG U (2) INFORMATION FOR SEQ ID NO: 40: (i) SEQUENCE CHARACTERISTICS: 31 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 40: 31 GTA ATC ATG GTC ATA GCT GTT TCC TGT GTG U (2) INFORMATION FOR SEQ ID NO: (i) SEQUENCE CHARACTERISTICS: 40 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 41: GCA TGC CTG CAG GTC GAC TCT AGA GGA TCC CCG GGT ACC G 40 (2) INFORMATION FOR SEQ ID NO: 42: (i) SEQUENCE CHARACTERISTICS: 40 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: / linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 42:

TGC CAA GCT TGG CTG CAG GTC GAC GGA TCC CCG GGA ATT C

40

ACA CAA CAT ACG AGC CGG AAG CAT

(2) INFORMATION FOR SEQ ID NO: 43: (i) SEQUENCE CHARACTERISTICS: 24 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 43: 24 AAA TTG TTA TCC GCT CAC AAT TGC (2) INFORMATION FOR SEQ ID NO: (i) SEQUENCE CHARACTERISTICS: 24 (A) LENGTH: nucleic (B) TYPE: acid single (C) STRANDEDNESS: linear (D) TOPOLOGY: (ii) SEQUENCE DESCRIPTION: SEQ ID NO: 44:

24